

a chamber exhaust for exhausting said load lock chamber, said chamber exhaust including an atmospheric pressure vent line and a vacuum exhaust line, said vacuum exhaust line connected to said load lock chamber and to be connected to a vacuum pump, one end of said atmospheric pressure vent line being an open end and the other end of said atmospheric pressure vent line being connected to the vacuum exhaust line;

a moving mechanism provided in said load lock chamber for moving said substrate;

a local exhaust for locally exhausting a dust generating portion of said moving mechanism;

flow rate regulators, respectively provided in said gas supply and said local exhaust, for controlling, during movement of said substrate by said moving mechanism, an amount of gas supplied by said gas supply into said load lock chamber to be greater than an exhaust amount from said local exhaust so that the gas supplied by said gas supply is exhausted by said local exhaust and said chamber exhaust;

a first valve disposed at an intermediate portion of said vacuum exhaust line;

a second valve disposed at an intermediate portion of said atmospheric pressure vent line;

a controller, for controlling said first and second valves such that during movement of said substrate by said moving mechanism, said first valve is closed and said second valve is opened; and

a pressure detector for detecting pressure in said load lock chamber.

11. (Five Times Amended) A substrate processing apparatus comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply for supplying gas into said load lock chamber;

a chamber exhaust for exhausting said load lock chamber, said chamber exhaust including an atmospheric pressure vent line and a vacuum exhaust line, said vacuum exhaust line connected to said load lock chamber and to be connected to a vacuum pump, one end of said atmospheric pressure vent line being an open end and the other end of said atmospheric pressure vent line being connected vacuum exhaust line,

a moving mechanism provided in said load lock chamber for moving said substrate;

a local exhaust for locally exhausting a dust generating portion of said moving mechanism;

a flow rate regulator in one of said gas supply, said chamber exhaust and said local exhaust;

a first valve disposed at an intermediate portion of said vacuum exhaust line;

a second valve disposed at an intermediate portion of said atmospheric pressure vent line;

a pressure detector for detecting pressure in said load lock chamber; and

a controller for controlling said first and second valves such that during movement of said substrate by said moving mechanism, said first valve is closed and said second valve is opened, and for controlling said flow rate regulator accordance with a signal from said pressure detector to keep the inside of said load lock chamber at a higher pressure level than the atmospheric pressure during movement of said substrate by said moving mechanism.

16. (Four Times Amended) A substrate processing apparatus comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply for supplying gas into said load lock chamber;

a chamber exhaust connected with said load lock chamber for exhausting said load lock chamber;

a moving mechanism provided within said load lock chamber for moving said substrate;

a first vacuum exhaust line which is to be connected to a vacuum pump and which is connected with said load lock chamber;

a second vacuum exhaust line which is connected with said substrate processing chamber and said first vacuum exhaust line;

a local exhaust for locally exhausting a dust generating portion of said moving mechanism, one end of said local exhaust being connected with said first vacuum exhaust line and the other end of said local exhaust being connected to a space covered by a cover for covering a dust generating portion of the moving mechanism;

a first valve connected to an intermediate portion of said local exhaust;

a second valve provided at a portion of said first vacuum exhaust line between said load lock chamber and a connection portion of said first and second vacuum exhaust lines; and

a valve controller for controlling said first and second valves, said valve controller controlling said second valve to be closed during processing of said substrate in said substrate processing chamber.

18. (Six Times Amended) A substrate processing apparatus comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply for supplying gas into said load lock chamber;

a chamber exhaust for exhausting said load lock chamber;

a moving mechanism provided in said load lock chamber for moving said substrate;

a cover for covering a dust generation portion of said moving mechanism;

a local exhaust for locally exhausting a dust generating portion of said moving mechanism;

a flow rate regulator in one of said gas supply, said chamber exhaust and said local exhaust;

a partition plate provided in said load lock chamber for partitioning said load lock chamber into a first region in which said substrate is moved and a second region in which said moving mechanism is positioned; and

a slit provided in said partition plate, wherein

said gas supply is connected with said load lock chamber at the first region of said load lock chamber in which said substrate moves,

said chamber exhaust is connected with said load lock chamber at the second region of said load lock chamber in which said moving mechanism is provided,

said local exhaust being connected to a space covered by said cover, said chamber exhaust not being connected to said space, and

gas supplied by said gas supply into the first region in which said substrate is moved is made to flow into the second region in which said moving mechanism is positioned, and then to flow into said chamber exhaust and said local exhaust.